A B D O M I N A L P A I N

ITS CAUSATION AND SIGNIFICANCE.

by

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The purpose of this paper is to illustrate some forms of abdominal discomfort and pain, and to consider their causation, significance, and treatment. The cases are not considered as in any way exceptional; they are recorded merely to furnish types for comparison.

CASE I. Miss M., age 37, housekeeper in a hotel. This patient was thin and nervous looking. The complexion was florid. She complained of Indigestion. Pain was felt in the Epigastrium and round the waist about twenty minutes after food. The bowels did not move unless when Hamilton's Pills were taken. Megrim headaches, with disordered eye phenomena were frequent. She seldom went out of doors and was in the habit of taking tea three times a day. She took no alcohol. She had often a tingling sensation all over the body (needles and pins) which "seemed to gather into a ball about the throat". The tongue was clean, the pulse 96 per minute; the first heart sound was faint in the mitral area but both sounds were pure in all the areas.

I told her to live on Benger's food for a few days, with tea, freshly infused, once daily, and

unaccompanied by bread. Half a teaspoonful of the liquid extract of Cascara was ordered every evening, andfor the headaches I prescribed powders of Caff. Cit. gr.4, Phenacetin gr.10.

I saw the patient two days after. The megrim was much improved. Pain in the head had gone, but there was occasional visual disturbance. The bowels were moving regularly every day, but there was still epigastric pain. I ordered her to take Bismuthi Oxychloridi gr.v, Tinct. Stramon ℈i. in two teaspoonfuls of Aq. Menth Pip when this pain came on, and to repeat if necessary in two hours.

The headaches and tinglings continued to improve and the constipation ceased, but the pain in the stomach still continued. I put the patient on Acid Nitrohydrochlor. Dil. M 7½ given three times a day after food. After this improvement was rapid and steady.

The patient now takes Liquid Extract of Cascara regularly and enjoys good health.

CASE II. J.S. (female farm servant). This patient complained of severe pain about two hours after food, which was greatest about the epigastrium, but radiated towards the right side. The patient looked healthy.

She was well nourished and rosy and the tongue was clean. Her teeth were very bad, and she was in the habit of swallowing her food without perfectly masticating it, and of washing it down with what she drank. On account of her bad teeth she preferred semi-fluid food, such as Scotch Broth and Porridge, to anything that had to be chewed. The pain came on about two hours after taking food, and was relieved for a short time by taking a little more. There was habitual constipation.

I began treatment by advising her to go to a dentist, but this she did not consent to do. I bade her take her meals as dry as possible, not drinking along with her food. Tea was not forbidden, but to be drunk alone and not as part of a meal. Vi-Cocoa was forbidden and Van Houten's or Cadbury's recommended. The liquid Extract of Cascara Sagrada was ordered to be taken at night in half-teaspoonful doses, and Acid Nit.Hyd.Dil. ℳ5 in water ten minutes after food three times a day.

After a week's treatment I found that though the constipation was away there was still the intense pain two hours after food.

I now prescribed an alkaline powder of

five grains each of Oxychloride of Bismuth, Bicarbonate of Soda and Powdered Rhubarb, to be taken three times a day an hour and a half after food. Relief was obtained at once, and afterwards for some time the pain came on severely if the powders were not taken, but was very slight if they were taken.

These two cases I consider illustrative of two different kinds of gastric dyspepsia. In the first kind the pain is not acute, but is rather a sensation of tightness and discomfort. Often the patients are quick, careless eaters with bad teeth. Owing to their inability to masticate, they prefer spoon food such as porridge, Scotch Broth and boiled bread and milk. Spoonfuls of these foods are bolted down along with entangled air. When solid food is taken it is imperfectly chewed and is usually washed down with tea or coffee. Thus two of the normal stimuli to the secretion of gastric juice are weakened: (1) the reflex stimulus due to the feeling of food in the mouth and to the action of mastication is not so long kept up, and (2) the contents of the stomach are rendered unduly fluid, and act with less efficiency as direct stimulants to the gastric glands. The deficiency of antiseptic gastric juice allows of putrefaction going on in the stomach, and the putrefactive gases are the main cause of flatulence.

In the other case pain did not occur till a considerable time had elapsed after taking food. The patient looked strong and was otherwise in good health. Such pain is common on occasions in otherwise healthy people and often comes on at night. It is unaccompanied by flatulence. The cause is probably that secretion of the natural mineral acid, free hydrochloric acid, goes on after the stomach is empty, and acts as an irritant. The relief when food is taken supports this view.

To correct the morbid process in the first set of cases the diet should be regulated. If possible, food and drink should not be taken together: it is best that whatever drink is to be taken should be taken about half an hour before food to flush out the stomach. The food should be eaten dry, and swallowed without further moistening than what the saliva constitutes. The deficiency of gastric juice must be made good: better mastication will in part induce the natural secretion, but the wanting hydrochloric acid may be supplied from without. It is not generally necessary to supply pepsin as well; pepsin is not used up in the process of gastric digestion, a little will carry on the process of hydration if hydrochloric acid is present in sufficient quantity.

In cases like the second it is of no avail

to give mineral acids as a corrective. There is already an excess of mineral acid. A dose of soda usually gives speedy relief, especially when given with bismuth.

In the first atonic condition strychnine should be given before food, to stimulate the gastric glands. In some cases greater benefit is derived from the use of alkaline medicine than of mineral acid. This is where the tendency to acid fermentation is too great to be counteracted by the antiseptic action of the mineral acid. Soda in doses of five to ten g grains should be given to neutralise the morbid organic acids, and rhubarb root in doses of five grains to promote the secretion of natural gastric juice.

Moreover the administration of acids is not contradicted in cases where secretion of hydrochloric acid is excessive, but if given at all they must be given before pain is felt. The presence of an acid on a surface that secretes an acid tends to reduce that secretion, if given in time.

Acidity is an imperfect name for the dyspepsia which is popularly so called. It is due to deficiency of a normally acid secretion the gastric

juice, and to consequent excess of abnormal acids, butyric and lactic. Acidity may be dealt with in two ways: we may try to prevent the formation of the morbid acids by introducing an antiseptic - itself an acid; or after their formation we may try to neutralise them with alkalies.

It has been suggested that gastric ulceration is caused by the action of free hydrochloric acid on mucous membrane insufficiently supplied with alkaline blood. The pain in the class to which Case II belongs has certain resemblances to, and certain differences from the pain of gastric ulcer. The greatest similarity is the acuteness of the pain. The differences are these: in gastric ulcer the pain is usually more definitely localised and is aggravated by pressure, and it more usually begins directly after taking food. Pain due to excess of free hydrochloric acid often runs up the course of the vagi, it is not aggravated by pressure, and it usually begins more than an hour after food; quite frequently too, it is accompanied by anaemia, which is a usual condition of gastric ulcer.

The next two cases are cases with inflammatory changes in the abdomen.

CASE III. Mrs. A. age 38, two children, younger aged 9.

Two years ago this patient suffered from a "twist in the bowel", and was so ill as to be thought dying on one occasion. Six months ago she was treated for chronic constipation. Liquid extract of Cascara sagrada was ordered. The patient said that she found half a teaspoonful too much, and that five drops at night secured a daily motion. This quantity was afterwards reduced to three drops.

I was called to see her about 8 a.m on 19th November 1897. At that time she complained of severe headache, and pain in the right side shooting up to the shoulder. The pain was worst when she moved, but did not catch her breath suddenly. Her breathing was natural, abdomino-thoracic, and she had no cough. On auscultation the breath sounds were found normal. She was shivering and complained of cold. Pulse 132, Temp. 101. Her bowels had moved on the evening of 17th November. Two hours before I saw her she had vomited some greenish watery fluid. I gave the following powder. Caff. Cit. gr.4, Phenacetin gr.10 and restricted her diet to Benger's food and potash water. I saw her again about 2 p.m.

Her headache was now somewhat better. I gave an enema which brought away a few hard scybala at once, and about half an hour a copious and naturally formed motion was passed. At 8.30 p.m. her pulse was 132, and her temperature 103. She was a little easier and sweating copiously. Palpation elicited slight general tenderness; particular attention was paid to palpation at M'Burney's point, but no tenderness was elicited here beyond what would exist in health.

(20th September). On the following day ten grains of phenacetin were given at 8 a.m. When the patient was seen at 10 a.m. the pain was easier and the headache had gone. An enema was given but brought away only a string of mucoid substance. A feeling of slight griping was felt at the upper part of the abdomen. The urine contained a slight trace of albumen. Three times during the day she took and retained a little Benger's food. There was slight pain in the lower part of the abdomen relieved by drawing up the legs and slightly increased by pressure, but the main seat of pain and tenderness was over the liver. A bran poultice with a little mustard was applied here and temporarily relieved the pain. Once during the day she retched. To relieve the supposed congestion about the liver and to reduce the

temperature, I ordered Salicylate of Soda in ten grain doses every three hours. The patient had tired of Benger's food and potash, and as there had been no vomiting, I allowed her to have some fresh made tea and toast. This was retained. At 9 p.m. the temperature was 102 and the pulse 112. The breathing and her description of the pain in the right side did not indicate any pulmonary lesion. I auscultated the thorax, and found the breath sounds normal.

21st. On the morning of the 21st the patient felt better, but on taking some Benger's food she vomited. She vomited again about 2 p.m., this time the vomit was bilious. The pain in the right side was felt only on motion: there was marked tenderness in the right hypochondrium, and to a much less extent over the whole abdomen. In consequence of the retching the Salicylate of Soda was stopped. An enema was given. Some wind and mucous flakes were passed, but no solid faeces. Pulse 120, Temp.101.8. The urine deposited a great quantity of urates: on dissolving this by heat and boiling a scanty deposit of albumen was got. No bile reaction was got by nitroso-nitric acid. At 4 p.m. two grains of grey powder and six of oxychloride of bismuth were given, and at four hourly intervals after this, six grains of

Oxychloride of Bismuth were given alone. By 8.30 p.m. no further retching had occurred. The patient spoke quite intelligently, but very languidly. Pulse 116, Temp. 102. A rectal tube was passed but it drew off no flatus.

22nd. On the 22nd the patient was again retching. Five grain doses of oxychloride of bismuth relieved this for a short time, but the retching always returned. The mouth was dry and great thirst was felt. Ice was given to suck and gave comfort. Pain in the right side was only felt on movement, and the chief seat of tenderness was now the left hypochondrium. Much flatus passed during the day. The morning pulse was 120, temperature 102.2. In the evening the temperature was 102.8. A quarter grain of morphia was given in a suppository at 10 p.m., and repeated at 12 midnight in order to induce sleep. The pain was not great. The patient passed a quiet night.

23d. Next morning the mouth was naturally dry, and the mercury in the thermometer did not rise. Placed in the groin it rose to 101.8. A little brandy was given with the ice. At 9 p.m. the temperature in the groin was 101, pulse 120. The patient

had a dry cough. A small nutrient enema was given. A ~~table~~tea spoonful of Benger's food was slaked with a tablespoonful of cold milk, and a tablespoonful and a half of boiling water added. This stood by the fire for fifteen minutes and was not boiled thereafter as I wanted further digestion in the colon. A teaspoonful of brandy was added, and this was injected from a brass ear syringe through a red rubber catheter passed well up into the rectum. A quarter grain of Morphia was given afterwards as a suppository. The enema was retained.

24th. On the 24th the patient was fed as before, at 10.30 a.m., at 2.30 and at 9.30 p.m., but morphia was not given. The morning temperature was 101, the pulse 120. At 2.30 p.m. I gave a hypodermic injection of pilocarpine nitrate gr.$\frac{1}{20}$. I did this with the following facts in view: that the skin and mucous membranes were dry, the temperature raised and the urine scanty and albuminous. Great sweating was induced and the sensation of dryness pleasantly relieved for a while. Before giving the evening nutrient enema, I washed out the rectum. In the evening the temperature was 102 and the pulse 128.

25th November. Next morning the patient was again fed. The pulse was running too fast and weak to be counted, and the temperature was 104. In the evening her mind was wandering. She was again fed and half a tabloid of pilocarpine nitrate, amounting to gr. $\frac{1}{20}$ was placed in her mouth to relieve the dryness.

26th. November. On the 26th she was much worse but conscious enough to know her mother and myself. Her breathing was quick and shallow, but unimpeded. I gave another nutrient enema in the forenoon, but did not take her temperature. At 12.30 p.m. the patient died.

CASE IV. Miss M. aet. 26 had according to her own statement, had peritonitis twice. She had also been treated for gastric ulcer.

On 9th March 1898 she was seized with a severe pain in the left hypochondrium. The pain was worst at a point two inches below the costal margin and three from the middle line, and was greatly aggravated by pressure here. Only slight pressure could be tolerated. There had been no dark coloured vomiting, but all the food that had been taken during the day had

been vomited. The bowels had moved that morning. Hot turpentine stupes were applied but did not give much relief. The patient lay curled up on her right side. The pulse was 96, Temperature 99.2. The following mixture was prescribed:-

R. Bismuth Oxychlor ℥ ii
Acac. Gummi gr.x
Acid Hydocyan Dil. ℥ß
Ag. Anethi ad iv

Sig. ℥ii to be taken every three hours. An enema was given. No solid faeces were passed. When the water constituting the enema was returned it had a dark but not tarry colour. At ten o'clock as the pain was still great, a hypodermic injection of morphia (m. hydrochlor. gr.¼) was given. The patient spent a quiet night. The hot fomentations were continued from time to time. Temp. (10 p.m.) 100.

Next morning, 10th March, the pain was still present but less. Some peptonised milk was given with potash water and was retained. Temp. 99.4. Pain was now most severe in the supraspinous regions over the scapulae especially on the left side, and

stretched up the side of the neck. Fomentations and poultices had to be discontinued as the skin had got blistered. In the evening the pain was very severe in the shoulders. A morphia suppository (gr.$\frac{1}{3}$) was given, but the relief was only slight.

On the 11th March the pains were less, a little less, but the appearance of distress on the patient's face was not nearly so great. The arms were crossed over the abdomen, and the patient said that she felt it pleasant to relieve the weight of the bedclothes thus. She could now lie on her back. Still however the pain in her shoulder was the severest of all. The temperature was now normal and remained so for the rest of the course of the illness.

After this the pain gradually subsided. The last to leave was a pain felt in the right side when the patient lay on her left, but this she said was of long standing. The bismuth mixture was continued for about ten days, during which the diet was confined to milk, peptonised with soda water, champagne, Revalenta Arabica and afterwards white fish, chicken toast, and cream toast biscuits.

In those two cases the severity of the pain was not

a criterion of the gravity of the illness. In the first case (Case III) the pain was not severe after the first day: in the second it was intense. The stomach was at fault in both cases. This I deduced from the fact that food was rejected, but that vomiting ceased when the contents of the stomach were brought up, and did not persist as would have been the case in obstruction. The first case (Case III) I diagnosed as beginning with gastric catarrh and going on to peritonitis about the stomach and liver. At first I did not come to this conclusion. I knew that the patient was of neurotic temperament, and that she did not go much into the open air. I suspected and after the enema ascertained that she had constipation. I thought at first that she might be suffering from mere biliousness. But the persistence of her symptoms contradicted this. Persistent vomiting of itself would have led me to think of obstruction, but vomiting due to obstruction would not be relieved by the use of bismuth in small doses, and would not stop with the emptying of the stomach. Besides, other symptoms went against obstruction. Much flatus was passed on the 22nd, which would exclude obstruction low down in the alimentary canal, and the urine was too copious to indicate obstruction

high up. Towards the end peritonitis seemed to me undoubted for on the gradually failing strength and pulse, the pinched face and the cold skin.

The other case looked liker peritonitis at first with severe pain and quick pulse. The definitely localised tenderness, and later the steady improvement under bismuth, taken with the age of the patient, pointed to gastric ulceration. This of itself would be enough to account for the attitude with the hands across the abdomen, which need not be taken as pathognomic of peritonitis. But peritonitis is not excluded, and the feeling of uneasiness still felt whenever strain is put on the hepatic ligaments supports the probability of peritonitis. This pain was present before the last acute illness and may have been the result of the two former attacks of peritonitis which the patient had. The pain in the shoulders was probably muscular from the constrained position which the patient assumed, curled up on the right side, but on the other hand it might have been reflex.

What caused the peritonitis in Case III? Was peritonitis primary? If it had been I should have expected more tenderness than there was, and less free motion of the abdomen on respiration. Peritonitis might occur by continuity from mucous membrane

to peritoneum, or what is really the same thing, by migration of organisms. The bacterium coli commune inhabits the whole alimentary canal. Any catarrhal change may allow of the migration of the bacterium to the peritoneal cavity and the onset of peritonitis. Mere constipation may be the only existing cause discoverable.

In this case peritonitis may have begun from the colon in the hepatic and gastric regions, but it is more likely to have followed as a result of gastric catarrh. It did not set in till after the lower bowel was cleared, and after the catarrhal condition of the stomach had existed for some time. Looking back on this case, I think washing out the stomach might have done good. I know of a case of gastric catarrh where a patient, thought to be dying, and certainly unconscious, recovered after washing out. After lavage some hot chicken broth was administered, and in a few minutes the patient showed signs of improvement. Probably the heat was the most important quality of the chicken broth, but recovery after this was uninterrupted.

CASE V. J. S. aged 58. This patient had a small farm ten years ago, in which he was unsuccessful.

For a long time after this he was very low-spirited and was subject to epileptic fits. I saw him in his last about eighteen months ago.

On 20th November 1897 I was asked to send him something for a headache. His bowels had moved freely on the previous morning, and on the previous afternoon, (19th) he had retched frequently. I sent him a powder containing Caff. Cit. gr.3, Phenacetin gr.10. I saw him on the 21st. He had now no headache, his pulse was 100 per min. Temperature 99.6. Pain was felt generally overthe whole abdomen and especially in the region of the liver running up towards the right shoulder. There was some tenderness over the liver, but no tenderness on ordinary pressure over the rest of the abdomen. The patient was a fat man, and the abdomen was prominent, but there was no tympanites, and I could make out no enlargement of the liver. On the left side there was a scrotal hernia which the patient could easily return. The tongue was coated with a thick brown fur: the urine was loaded with urates which dissolved on heating; no albumen was present. An enema of about a quart of warm water was given. A copious motion was passed ten minutes after and twice again in the course of an hour the bowels moved. After this the patient

was relieved. The diet was restricted to Benger's food, and I prescribed Acid Nitrohydrochlor. Dil. ♏ 5 three times a day to be taken in water after meals.

Next day, 22nd November, the bowels moved again. When I saw him the abdomen was distended with wind. I suspended the administration of the acid and gave three doses of Pulv. Cretae Aromat. gr15 every three hours. (It would have been better to omit the chalk and give aromatic powder alone. I was wr wrong in thinking that the bowels were completely evacuated.) Temperature 97.4, Pulse 96.

After this the patient was free from pain till the morning of the 24th, when it set in again. About 11a.m. there was a somewhat scybalous motion of the bowels. At 12 the pain was very great, extending all across the upper part of the abdomen. Temp. normal, pulse 84. I gave an enema, but it brought away only some fluid of a dark faecal colour. Cloths were wrung out of hot water and some dry mustard sprinkled on them. When these were applied slight relief was experienced. I gave by the mouth Morphin. Hydrochlor. gr.$\frac{1}{4}$, Hyoscinae Hydrobrom. gr. $\frac{1}{75}$ in the form of tabloids dissolved in water. About 2 p.m. the patient fell asleep, and slept off and on till next morning. On the 25th the patient was free from pain. Temp. normal, pulse 84. On the 28th the

temperature was normal, pulse 72. There was no pain. Up to this time he had kept to Benger's food and potash water; now he was allowed tea, toast and white fish, and was instructed gradually to adopt ordinary diet. Since then he has kept well keeping his bowels open with extractum Cascara Sagrada Liquidum (3ß at bedtime).

This case I considered as one of simple colic. The absence of tenderness over the abdomen, and the paroxysmal character of the pain, with the practically normal temperature led me to think that there was spasmodic contraction of the intestinal muscle, and that the fact that food was well tolerated seemed to me to exclude complete obstruction. Colic might be due to irritation of the mucous membrane, or to some reflex nervous cause, such as cold. In this case the passage of scybala gave relief, so we are justified in assuming that they had caused the irritation before. The converse is not a logical deduction. If the passage of the scybala does not give relief, it does not follow that the scybala did not cause the colic, for in the first place the evacuation may not be complete, and in the second, with or without complete evacuation a tender place in the mucous membrane

may be left on which a stimulus otherwise innocent may cause spasm. If scybala were all the cause of the colic, the colon alone must have been at fault, as there only are the faeces solid; and though it is no safe guide, it is noteworthy that the pain was at first localised to the epigastrium, across which the colon runs. The cessation of pain rendered other treatment unnecessary. When the pain recurred there were no scybala removed, and pain persisted. I concluded that the colon was again at fault, and after doing what I could to remove all irritant matter I gave morphine and hyoscine. But this was not only destroying a symptom, it was treating a morbid condition. The spasm itself was an irritant; if there were scybala it was even a cause of obstruction. The amount of the drug required is much less than would be required to correct equal pain from another cause. Our object was not to allay pain by narcosis but to abolish the spasm which caused the pain. This might be done without ~~stupefying~~ narcotising the patient. By thus abolishing spasm opium may even have an aperient affect.

The method I adopted in giving the enemata is slightly different from that ordinarily described. I made the patient lie on his back. In this position more room is allowed for the expansion of the abdomen, and a larger quantity of water can be used. When a patient lies on his side, the left for instance, he

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is usually so curled up that the distance from the sternum to the pubes is shortened, and also with the left side pressed close as it is to the bed expansion can take place only forward and to the right. By the weight of the intestines there is a drag on the right flank which is considerable in a fat person with flabby abdominal walls. In the dorsal position expansion is possible forwards and to either side, and the distance from the sternum to the pubes is such as to give the abdomen its maximum capacity. When the patient lies on his side, very often his left arm is under him. This raises the splenic flexure, and compresses the descending colon. The water thus gathers in the sigmoid flexure. With the patient on his back the whole of the descending colon is nearly on a level and the enema is uniformly distributed. It is an advantage to use a long rubber tube attached to the bone nozzle of the enema: this gives increased length which is a help where chaff and feather beds are used, for in these a pit is sure to form out of which a patient cannot climb. Moreover it is easier for a patient, for the rubber accomodates itself to the curves of the rectum better than a hard rigid bone nozzle. Again the long tube can carry the fluid well up the rectum, past the sensitive region where very slight pressure would induce a strong desire to defaecate immediately. Thirdly, one can often draw off

flatus before beginning the enema: thus a greater quantity of water can be introduced. Water of course, flushes the bowel out much better than air would. I have seen great relief given after abdominal operations by merely drawing off flatus with a tube. It is certainly more difficult to insert the nozzle into the rectum when the patient is on his back than when he is on his side, but the use of the rubber tube helps this. Water alone is often better than soap and water; it is not so speedy, and this allows of a more extensive action. It is usual to have a first motion in about five minutes, small in quantity, and then one or two large motions about an hour or two after.

The advantages of the enema over medicine given by the mouth are its safety, its rapidity, and the fact that it brings the contents of the rectum away almost unchanged. The diagnostic aid of this last point is considerable. I have not found much difficulty in overcoming the scruples of a few patients against it.

CASE VI. William Wright, aged 23. This patient is a delicate looking young man. In April 1897 he was promoted from being an engine cleaner to being a

fireman on a railway train. Previous to this he had had good meals regularly: after this he had to carry his food. One week he had to go to work about half past six in the morning, the next about half past seven. On the early mornings he carried sandwiches and bread and butter for breakfast, dinner and tea, with tea at all three times, he took no milk in his tea. On the later mornings he took a little tea and bread and butter with occasionally an egg before going to work. He had a good hot dinner when he came in at seven p.m. In June 1897 he was off work for one day with diarrhoea. Afterthis he could never take anything hot without suffering afterwards from pain and diarrhoea. He gave up taking any breakfast at home, and on alternate weeks took no food till noon. He still took hot dinner at night, and this was habitually followed by pain which lasted till his bowels moved. They moved each morning as well. Both motions were preceded by pain and were loose in character. At last the pain was only partly relieved by motions and was never quite gone. The pain was in the lower part of the belly. On 18th January he had to take to bed. There had been the usual pain and diarrhoea in the morning. About 3 p.m. his temperature was normal. Pulse 46 per minute. The dejecta were lumpy but loose. I ordered a powder of Bismuth.Oxychloridi gr.10, Opii gr. $\frac{1}{4}$. The diarr-

hoea stopped after this but there was still slight pain. Towards evening he took some hot bread and milk, but the diarrhoea did not return; there was however slight pain. At night his pulse was 40 per minute. and I ordered two teaspoonfuls of brandy every two hours. Next morning, 21st January, the patient was free from pain. Temp. 97.4, pulse 48 per. min. No further motion had occurred. His diet was restricted to boiled milk and Benger's food. During the day the bowels moved twice. The motions were slightly formed, slimy and of a dark brown colour. Pulse 40 per. minute.

Next day, 22nd January, the bowels moved once. The motions were not so slimy and were formed. There was no pain. Morning temperature 98.4, pulse 50. Evening temperature 98.4, pulse 44. Some fish (haddock), toast and boiled milk were allowed.

On 23rd January there was no pain; the temperature was normal, pulse 52. There was no pain nor diarrhoea but great weakness. There was a frequent cough and dark grey morning expectoration. Auscultation revealed nothing abnormal.

On 28th January slight pain was felt in the abdomen. An enema brought away a scybalous mass. Pulse 52.

29th January. There was slight pain and a motion in the morning.

30th January. No pain. The patient feeling stronger.

The patient after this was put on regular doses of bismuth oxychloride, five grains, three times a day. On this he gradually improved. At first he had one motion with preceding pain in the morning, but soon this stopped and he managed to keep well, though weak, taking his medicine regularly. Gradually he gave it up and now he has a regular painless morning motion, and is nearly as strong as usual. His cough yielded to a sedative mixture.

R. Lig. Morph. ℥i
Acid Sulph. Arom. ℥i
Acid Hydocyan Dil. ℥ß
Vin. Ipecac. ℥ii
Syr. Rosae ad. ℥iv M.

Sig. ℥ii to be taken when the cough is troublesome not more than three times a day.

He only took this mixture once a day for a short time. He does not now need to diet himself specially, but takes his food as he did a year ago

before his illness began, getting hot food carried to him as his train passes the station. His pulse beats usually at the rate of about 70 per minute.

This case I considered as one of enteritis with no implication of the peritoneum. It had several points of similarity to the previous case. There was paroxysmal pain, and this pain was relieved after motion of the bowels. There was no tenderness, and there was no fever. It had several points of difference; the pain was in the hypogastric region, in the previous case the pain was in the hypochondriac and epigastric regions. In the previous case pain was associated with constipation, in this with diarrhoea. In the previous the pain was much greater than in this. In the previous case the pulse was quick. in this abnormally slow. In the previous case the condition was acute, in this chronic.

The presence of scybala in the previous case showed that at least the colon was sluggish. The loose stools of the latter case showed that the motions were hurried through the colon. The pain in the first case was over the colon, in the last it was in the region of the small intestine.

It was not likely that after six months

diarrhoea there should be in the bowels an irritant that a purgative would remove. The enema was given partly to ensure this, and partly to wash out the bowel. The bismuth and opium powder was given to allay possible irritation of the mucous membrane and consequent muscular spasm. The restricted diet was meant to reduce to a small amount the faeces and the secretion of the glands of the whole alimentary canal.

It is possible that the alimentary tract had got accustomed to provide a normal amount of secretion for the cold food which constituted most of the man's diet, and that the additional stimulus of hot food taken usually at night when the man was tired, caused hypersecretion. Another possibility is that the cold food did not act as a sufficient stimulus to the glands of the stomach, and was discharged into the duodenum before its perfect conversion into chyme. There it would act as an irritant, and the introduction of hot food afterwards would help its speedy discharge. This last I think the more probable explanation, for I have seen marked benefit follow the use of a gastric stimulant, mustard, taken regularly with carried food, and this would act by improving salivary and gastric digestion. On the other hand I have seen cases where no inconvenience

was felt except after the one weekly hot dinner. All the rest of the week, when the food was cold, nothing was wrong. On Sunday afternoon there was diarrhoea. This would support the idea of occasional hypersecretion rather than of habitual deficient secretion.

The slow pulse was interesting. It was strong but not hard, and was quite regular. It was due I think to general weakness. As the patient got stronger it gradually resumed its normal frequency of about 72 per minute.

CASE VII. Mrs. W. aged 54. In July 1897 I attended this patient for an attack of pain in the right iliac fossa. There was no rise of temperature. I looked on the case as an affection of the appendix, not necessarily but probably, inflammatory. I gave an enema, and some scybala were passed. A carbolic poultice 1 in 40 was applied, and a suppository of morphia hydrochlorate (gr$\frac{1}{6}$) was given. The pain gradually diminished. Next day Salol gr.10 and Bismuth. Oxychlor. gr.v, were given. The patient was well in six days.

In August, when the patient was in Edinburgh

she had an attack of pain in the right iliac fossa. She was treated with enemata and linseed meal poultices and was well in ten days. The doctor who attended her told her that she had had inflammation of the bowel.

In May 1896 the patient had undergone a gynecological operation, of what nature she does not know. Her symptoms were pain in the back, and menorrhagia, she had never ceased to menstruate. After the operation the discharge continued abnormally profuse but stopped on the mere prospect of a vaginal examination.

October 1897. For several weeks the patient had been taking cascara and had had a daily motion. The bowels had moved on Monday 25th October. At ten o'clock that night violent pain had set in: it was felt in the back about the junction of the thoracic and lumbar regions, the epigastrium and the right iliac fossa. Hot poultices were applied, and an enema given by the patient's daughter, which brought away only a few scybala. The patient took nineteen drops of laudanum and followed with ten drops. At 2.30 a.m. on Tuesday 26th October I saw the patient. She was lying on her back with a facial expression of great

pain. The temperature in the mouth was normal, pulse 105 per minute. There was marked tenderness in the right iliac fossa especially at a point two inches above the symphysis pubis and two inches to the right of the middle line. There was great flatulent distension especially in the upper part and left side of the abdomen. I applied a carbolic poultice 1 in 40 to the right iliac fossa dissolving the carbolic acid in hot water, and covering the flannel cloth with guttapercha: this did not shrivel. At 3.15 the thermometer registered a temperature of 99.8. Hot fomentations were persisted in and gave slight relief. At 5 a.m. a suppository of Morphia Hydrochlorate gr$\frac{1}{6}$ was given. At 10 a.m. the temperature was 100.8 and at 6.45 p.m. 101.1.

On Wednesday 27th at 9.45 the temperature was 99.8. A vaginal examination was made and I found that the right lateral fornix was bulging and tender on pressure. At 6 p.m. Salol gr.10 were given, and repeated at 10.30 p.m. During all this time cloths wrung out of hot water were put to the painful place. Ten grains of Salol were again given on Thursday 28th October. On Thursday morning diarrhoea set in, the last motion of three being passed at 9 a.m. At 10.30.a.m. the temperature was 98.8 and the pulse 92.

There was great flatulent distension of the abdomen. The pain was not so great as before and was felt chiefly about the pubes. At 6.45 p.m. Pulv. Cretae Ar Aromatic gr.15 were given. I saw the patient at 7.45 p.m. She felt better. The temperature was then 99 in the mouth. A dish of grapes was standing by the bedside, and the patient had been sucking some, but said she had not swallowed any.

On the morning of Friday 29th October the temperature was 97.8, and the pulse 96. The distension of the abdomen was not so great. The patient complained of pain in the right side. She thought this might have been due to chill caught from her clothes which had got wet from the hot fomentations. On examination I heard nothing abnormal in the breath-sounds or on percussion, but at the border of the ribs in the mammary line I found a hard swelling about the size of a pigeon's egg, which crackled slightly on pressure. This was the centre of pain. I had once before seen the tenth rib floating with its free extremity projecting in the right hypochondrium and though morally certain that this case was not similar I tried to follow the lump to a connection with a rib, but it disappeared deep under the costal margin. This of course was the gall bladder with several calculi.

On returning in the early morning of the 26th, I had boiled some of the patient's urine and got no precipitate. On the 29th the urine was brownish green and had an acid reaction. Nitroso nitric acid gave a play of colour and a copious precipitate. An almost imperceptible precipitate occurred on boiling. Tincture of the perchloride of iron gave a dark purple reaction. I attributed the precipitate and play of colour with the Nitroso nitric acid and the purple colour with the perchloride of iron to the salol which had been given on Wednesday and Thursday.

On the morning of Saturday 30th October, about 2 a.m. an exacerbation of pain occurred. An enema was given by the patient's daughter, and brought away a hard scybalum. Relief was felt after this. About 10a.m. the hard knot on the right side was again examined and again crackling was elicited, but could not be produced indefinitely. At the lower part of the abdomen tenderness was greater on the right than on the left. The temperature was normal. The urine was now not so dark, and gave no precipitate on boiling. A slight precipitate but no play of colours was got with nitric acid and this precipitate dissolved on heating.

31st October. On the 31st October the patient got five grains of salicylate of soda thrice. On the right side of the pubic region the tenderness

was not so great: on the left it had gone. Palpation of the knot in the right hypochondrium caused no pain. An enema brought away several scybala, some of them of the colour of aromatic chalk powder. I also saw two small bodies like grape stones in size and shape, dark brown and of the consistency of ordinary cheese. Several long strings of jelly-like substance were also passed.

On the 1st of November there was still pain on the right side about the liver. She had had an enema that morning lying on her left side, but I gave her another as she lay on her back and brought away a large quantity of scybala. There was less tenderness in the right pubic region and none in the left. There was still tenderness in the right vaginal fornix. The three daily doses of salicylate of soda were again given.

The patient's condition remained much the same for the next few days and Extractum Cascara Sagrada Liquidum was given (3ß every night.) This kept the bowels moving freely. The diet was increased in variety from milk through milk puddings to white fish, dry toast well chewed, and freshly made tea.

On 5th November blisters were applied to

the tender point the iliac fossa on the right side, and the following mixture given three times a day.

R. Ammon. Chlor. gr.x, Sod. Salicyl. gr.v
Aq. ℥ß. ℞.

By the eighth of November there was decided improvement. The tenderness in the right iliac fossa was less, and the pain in the hepatic region was also less, being very slight except when the patient turned on her left side.

On the 11th November there was a dull pain still felt about the hepatic and right pubic regions, but not so bad as before, and a heavy feeling about the lower part of the back. On a vaginal examination the os uteri seemed patulous, and the anterior lip thickened. A little tenderness was felt in the right fornix, but none in the left, and the cervis was not tender. The finger when withdrawn was found to be covered with an opalescent glairy discharge.

By the fifteenth of November the patient could lie with comfort on her left side. The long stringy shreds of mucus were still coming from her bowel. On the 21st the pain in the hepatic region was very slight and was felt only at the back: the patient was now going about. She said that the pain got a little worse in the mornings when she got up

until her stays were on, and they relieved her. To the last the hard knot in the right side was as distinct as ever. I have seen the patient several times since then, and she is now in good health. She pays great attention to the motions of her bowels taking cascara with glycerine regularly.

The important point in this last case was that the pain was localised definitely. In the other cases except Case III the patients had indicated the place of the pain with the whole hand, but in this the point of a finger was used. For the first few hours indeed pain was distributed over the epigastrium generally and not confined to a spot, but afterwards its situation was definite. The centre of pain was not what is generally described as M'Burney's point, but dissections show how various the positions of appendices are, and I have no doubt that the appendix was the seat of pain. In the first attack the temperature did not rise and I attributed the pain to the functional appendicular colic. Mr. Treves shows that this term does not correctly describe the condition intended, and that such cases are cases of appendicitis.

Though there was no difficulty in putting this case down as appendicitis, the subsequent attacks

of pain in the right side and sacrolumbar regions showed that appendicitis was not all. I do not think that the pain on the right side was biliary colic, for it did not come on suddenly nor in paroxysms. The pain in the epigastrium and back which were present at the first onset of the illness may have been due to the passage of the two grapestone like bodies which I found in the motion of 31st October, or of others like them. The pain which afterwards set in on the 29th I attribute to perihepatitis, for whenever the patient assumed the erect position or turned on her left side, that is whenever a strain was put on the hepatic ligaments, pain was felt. A hypothetical cause is easily found. Mechanical violence may not be enough of itself to set up peritonitis, but mechanical violence such as for instance the passage of a gallstone, might give an opportunity for the bacterium coli commune to become pathogenic; and as this organism is everywhere present in the alimentary canal, mechanical violence becomes practically a possible cause of peritonitis. It is possible that the pain in the epigastrium and back which was felt on the 25th when the trouble began may have been due to the passage of a gallstone, but it is more likely that it was due to the appendicitis alone; for the pain of appendicitis is not limited to the region of

the appendix, and as probability is against the coincidence of independent events it is not likely that pain in the iliac fossa and pain in the epigastrium should come on at once simultaneously and independently. Still it is possible that biliary colic might be reflex from appendicular pain: Cramp in a gall bladder containing gallstones might be set up reflexly, as the first vomiting in a case of complete obstruction is set up. The converse is not at all likely, namely that the particular gallstone causing or supposed to cause biliary colic should set up appendicular colic at the same moment. For even if we suppose that noninflammatory colic does occur, we should in such a case expect no pyrexia, and we should expect relief of pain in the appendix after the supposed primary pain in the epigastrium and hypochondrium ceased. Of course it is possible that a gallstone may have set up appendicitis, if so the gallstone could have no direct connection with the epigastric and hypochondriac pain of the 25th, as considerable time would have been required for its journey from the bileduct to the caecum, and the pain in the iliac region was simultaneous in onset with that in the epigastrium and hypochondrium.

The late pain in the sacro lumba region was, I think due to endocervicitis which the presence of characteristic glairy discharge and the apparently patulous os led me to diagnose.

CASE VIII. Mrs. B. two months pregnant consulted me about a pain which she felt in the right iliac fossa. It was constant and dull. She had no other complaint, but stated that she was habituallly constipated. She was put on half a drachm doses of Liquid Extract of Cascara Sagrada, taken every night. I saw her a week after, and her own words were that the pain was "bodily gone".

This condition is not uncommon especially in pregnant women, and it mainly occurs in the early months. I do not think it is due to the irritation of the sigmoid flexure. I think rather that the enlarging uterus, still in the cavity of the pelvis, and the full rectum and sigmoid flexure compress the left ovary between them.

Taking the cases generally we may make the following observations.

1. The severity of the pain taken by

itself does not indicate the gravity of the illness. In Case V, simple colic, the pain was intense; in case III, peritonitis, the pain was not severe. The most severe pain of all was that in Case IV, where convalescence was well established on the fourth day. The most protracted illness was that of Case VI, where pain was never severe.

2. Localisation of pain has considerable significance. In case IV and Case VII, pain was localised with the point of a finger, and almost certainly the lesion was actually at the seat of pain. In Case VI, where the trouble was almost entirely in the small intestine, pain was referred to the lower part of the abdomen. Pain in the epigastrium and hypochondria does not indicate anything definitely. In Cases I. II, III, IV, epigastric pain indicated disease in the stomach; in cases V and VII the colon was at fault. Pain in the hypochondria may be due to mere functional congestion of the liver as in Case V, or to perihepatitis as in Case VII.

3 Paroxysmal pain indicates spasm of muscle. It is not likely to indicate peritoneal mischief, where the pain is constant as in Case III towards the

end of the illness, Case VII about the appendix and liver. It is more usually associated with irritation of the mucous membrane of the bowel as in Cases V and VI of the surface which should be covered with mucous membrane as in Case IV, and may be reflex from another cause altogether, such as cold.

4. Tenderness on pressure is usually definitely localised where peritoneal mischief exists and where there is gastric ulceration. Perhaps the latter class of cases may be included in the former. Adhesive peritonitis is very frequent in cases of gastric ulceration. Tenderness was extreme in in Case VII in theregion of the faulty appendix, in Case IV in the epigastrium where there was a gastric ulcer; in Case III over the stomach where there was latterly peritonitis. Tenderness was absent in case V where there was functional colic, in case VI where there was general enteritis, but no peritoneal lesion, at first in case III before peritonitis had set in, and in Cases I and II with functional dyspepsia.

5. Pain may cease to be merely a symptom, and may itself become an irritant, by keeping up spasm in a sensitive part. (Case V) In such a case allaying the pain constitutes the treatment.